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The Undergraduates' Attitude towards the Use of Asynchronous Online Discussion (AOD)

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Abstract: This article intended to describe the undergraduates' attitude towards the use of asynchronous online discussion (AOD). A total of 269 undergraduates in Universiti Putra Malaysia (UPM) participated in this study. Attitudes scale consisted of 23 items with five point likert scale were used as the instrument in this study. Overall, findings of this study indicated that undergraduates have positive attitudes towards the use of AOD.

Keywords: Attitude, asynchronous online discussion (AOD), computer mediated communication (CMC)

1. Introduction

In the recent years use of Computer Mediated Communication (CMC) in higher education institutions (Ferriman, 2013; Sidhu & Embi, 2010) has increased due to the remarkable popularity of the Internet. Study shows that, students prefer to use asynchronous CMC as compare to synchronous CMC (Kocaman-Karoglu, Ozden, & Kiraz, 2011; Ali, & Joyes, 2007; Hewitt, 2005). The major shortcoming of synchronous CMC is that students are not able to partake at the same time due to the busy schedule and time restrictions (Huang & Hsiao, 2012).

Asynchronous online discussion (AOD) is described as "a text-based human-to-human communication via computer networks that provides a platform for the participants to interact with one another in exchanging ideas, insights and personal experiences" (Hew & Cheung, 2003, p. 249). The tools that supported AOD include fax, email, mailing list, calendar, survey and pools, internet bulletin, discussion boards, list-servers, newsgroups, forums, announcement, blackboard documents, wikis, blog and social networking sites [such as Facebook, Twitter, etc] (Ferriman, 2013; Huang & Hsiao, 2012; Chen, 2012; Ali, Ali, Abdullah & Ayub, 2008; Erlin, Yusof & Rahman, 2007; Roblyer, 2006; Rainsbury & Malcolm, 2003).

2. Literature Review

An individual' attitude plays an important role in directing and shaping individual's behaviour in daily live (Aydin, 2012; Schafer & Tait, 1986). An individual's attitudes can be influenced by mood and emotion (Ajzen & Fishbein, 2000). Ajzen and Fishbein (2000) have described attitude as favourable or unfavourable individual's degree of action with respect to a psychological object. The successful implementation of any educational technology utilization in teaching and learning process is also influenced strongly on students' positive attitudes towards the educational technology (Williams, Boyle, Molloy, Brightwell, Munro, Service, & Brown, 2011). Student's attitudes play as a crucial role in educational technology usage and are not subject to change unless it causes ineffectiveness (Onen, 2012). Therefore, it is valuable to have knowledge regarding students' attitudes towards the use of educational technology in directing better understanding pertaining students' communication behaviour in online learning (Aydin, 2012). Additionally, Williams *et al.* (2011) have stated that understanding students' attitudes towards educational technology would enable to facilitate the development and improvement of appropriate educational strategies and initiatives.

The theory that guided this study is Technology Acceptance Model (TAM) developed by Davis in 1986 (Davis, Bagozzi, & Warshaw, 1989). The TAM was formulated to predict computer usage

across a broad range of computer based technologies via five variables namely behavioural intention, attitude toward using, perceived usefulness, perceived ease of use, and external variables (Davis *et al*., 1989). The TAM obtained various empirical supports for being one of a powerful and parsimonious in predicting technology acceptance and adoption (Wong, Osman, Choo & Rahman, 2013).

In this study, one of the elements in TAM that has been adopted is the attitudes variable. The attitude factor has been the spotlight of numerous studies in the use of educational technology (Abedalaziz, Jamaluddin, & Chin, 2013; Teo, 2012; Edmunds, Thrope & Conole, 2012; Aydin, 2012; Williams *et al*., 2011). The previous studies have shown that students' positive attitudes towards educational technology determine the successful utilization of the educational technology (Abedalaziz *et al*., 2013; Teo, 2012; Edmunds *et al*., 2012; Aydin, 2012; Williams *et al*., 2011). According to Teo (2012), students' attitude is the most dominant determinant of behavioural intention. He has recommended that, if the educational technology unable to fulfil students' need, they would decline to use it. Thus, it can be concluded that the undergraduates' use of AOD will be significantly influenced by their own attitude towards AOD.

3. Objective

The main purpose of this study was to determine undergraduates' attitude towards the used of asynchronous online discussion (AOD).

4. Research Methodology

4.1 Research Design

This study was based on quantitative research. According to Cohen, Manion and Morrison (2007) quantitative approach is a powerful research suitable for larger and smaller scale research, such as case studies, action research, correlational research and experiments. Thus, a descriptive research design was employed as it was believed to be the pertinent approach in order to determine the undergraduates' attitude towards the use of AOD.

4.2 Population and Sample

This study was carried out in the first semester 2012/2013 in Universiti Putra Malaysia (UPM) Serdang campus. Four faculties participated in this study and they were selected using a fishbowl random sampling technique where three faculties from the science stream (Faculty of Medicine and Health Sciences, Faculty of Science, and Faculty of Computer Science and Information Technology) and one faculty from the social science stream (Faculty of Human Ecology). These faculties represented the ratio of faculties in UPM where 12 sciences faculties and only four social sciences faculties (12:4). The total population for this study was 2770 undergraduates, where only the third semester undergraduates and above were selected as the target population. This was because they were assumed to be exposed to online learning for at least two semesters.

This study primarily applied the five-point Likert scale to measure continuous data and Cochran's formula was employed in order to identify the desired sample size (Bartlett, Kotrlik & Higgins, 2001). As a result, the required sample size was 244. Oversampling technique was applied to overcome the sampling error (Cochran, 1997). As recommended by Cohen *et al*. (2007), this would able to increase up to 50% of sample size because the response rate is usually fewer than the target sample. Thus, the drawn sample size after oversampling was 366. A total of 370 questionnaires were printed and distributed among undergraduates, however only 313 were returned. About 44 questionnaires were excluded due to the missing values and extreme outlier. Hence, a total of 269 cases were valid to be analyzed.

4.3 Instrumentation

This study used attitude scale developed by Albirini (2006) which had acceptable validity and had been commonly used by others researcher all over the world. The researcher acquired Albirini's permission

to adapt, modify and translate the instrument. The attitude scale consisted of 23 items and used a five point Likert scale. The questionnaire was administered in English and Malay language as the undergraduates were found to use both languages as the medium of teaching and learning.

4.4 Validity and Reliability

The content validity was established to guarantee that each item used was accurate for the research and the subjects (Gay, Mills & Airasian, 2009). After the content validity process had been verified and established by three educational technology experts, the questionnaire was retained for the pilot test in assessment of the reliability among 40 undergraduates in UPM. All of the respondents were a third semester student and they were randomly selected and were not involved in the actual study. The tolerable Cronbach's alpha value of a scale instrument must above 0.70 (Pallant, 2001). The value of internal reliability obtained based on pilot study (N=40) was 0.86, while the internal reliability obtained based on the actual study (N=269) was 0.90. Therefore, this instrument had found to have an excellent internal consistency because all alpha level was greater than 0.70.

4.5 Data Analysis

SPSS 19.0 statistical package was used in order to analyze the data obtained from this study. Descriptive statistics (frequency, percentage, mean and standard deviation) were used for data interpretation.

5. Results

The undergraduates' attitude towards the use of AOD was measured using the Attitude Scale consisting 23 items of five point Likert scales. The descriptive analysis revealed that the mean score obtained for this attitude construct was 3.74 with standard deviation 0.49. Since, the mean score obtained was larger than the cut-off point of 3, the overall undergraduates' attitude towards the use of AOD considered as positive.

Based on the information presented in Table 1, most of the undergraduates stated that the AOD was an efficient means of getting information (M=4.09, SD=0.64). They were also agreed that the AOD was a means of getting information faster (M=4.07, SD=0.62). The majority of the undergraduates glad that the AOD was applicable in their lesson (M=3.97, SD=0.76). Moreover, most of the undergraduates stated that learning about the AOD is not a waste of time (M=3.91, SD=1.00). Additionally, the undergraduates reported that using the AOD could enhance their' learning (M=3.86, SD=0.70).

Furthermore, the majority of the undergraduates would like to learn more about the AOD (M=3.84, SD=0.66). The majority of undergraduates reported that using the AOD would be able to save more time (M=3.83, SD=0.74). The undergraduates also stated that using the AOD made them feel comfortable (M=3.82, SD=1.05). Most of the undergraduates reported that using the AOD was enjoyable (M=3.81, SD=0.71). In addition, most of the undergraduates stated that students must use the AOD in all courses (M=3.71, SD=0.95).

6. Discussion

In general, the undergraduates showed positive attitudes towards the use of AOD in learning process. This finding is congruence with some previous study conducted at higher education institutions which stated that students have an overall positive attitude towards using computer technology for instance the Internet and online communication (Abedalaziz ***et al***, 2013; Aydin, 2012; Onen, 2012; Teo, 2012). According to Aydin (2012), students view asynchronous CMC as part and parcel in their social lives, as a technology are able to facilitate their lives because asynchronous CMC provides them with the opportunity to communicate anytime, anywhere and at their own convenience.

Table 1: Percentage of the undergraduates' attitude towards the use of AOD.

	Items	Percentage (%)					M	SD
		1	2	3	4	5		
1.	Using the AOD does not scare me at all.	1.9	7.4	19.3	49.8	21.6	3.82	0.92
2.	Using the AOD makes me feel uncomfortable.*	2.6	11.2	16.4	41.3	28.6	3.82	1.05
3.	I am glad that AOD is applicable in my lesson.	0.4	3.0	19.3	54.3	23.0	3.97	0.76
4.	I do not like to interact with others using AOD. *	3.0	10.8	22.3	37.5	26.4	3.74	1.06
5.	Using the AOD is enjoyable.	0.0	2.6	28.3	54.3	14.9	3.81	0.71
6.	I dislike using the AOD in lessons.*	2.6	8.9	22.3	36.8	29.4	3.81	1.04
7.	Using the AOD saves more times.	0.4	3.3	22.7	60.6	13.0	3.83	0.70
8.	Using the AOD saves effort.	1.1	3.7	24.5	59.9	10.8	3.75	0.74
9.	Universities would be a better place without AOD.*	2.2	12.3	19.3	34.9	31.2	3.81	1.08
10.	Students must use the AOD in all courses.	1.9	5.6	36.1	33.1	23.4	3.71	0.95
11.	Learning about AOD is a waste of time.*	0.7	10.4	19.3	36.4	33.1	3.91	1.00
12.	AOD would motivate me to study more.	1.1	4.8	32.7	51.3	10.0	3.64	0.77
13.	AOD is a means of getting information faster.	0.0	1.5	11.2	66.2	21.2	4.07	0.62
14.	AOD is an efficient means of getting information	0.7	1.1	8.6	68.8	21.6	4.09	0.64
15.	I do not think I would ever need the AOD in my classroom.*	2.2	14.9	24.5	45.0	13.4	3.52	0.98
16.	AOD can enhance students' learning.	0.4	2.2	23.4	59.1	14.9	3.86	0.70
17.	AOD does more harm than good.*	0.7	13.8	24.5	32.0	29.0	3.75	1.05
18.	I would rather communicate face to face than using AOD.*	9.7	40.9	39.4	7.8	2.2	2.52	0.86
19.	If I had enough time, I would use AOD.	0.0	4.5	26.4	56.5	12.6	3.77	0.72
20.	I would avoid using AOD as much as possible.*	1.5	10.4	24.2	35.3	28.6	3.79	1.02
21.	I would like to learn more about AOD.	0.0	1.5	26.0	59.1	13.4	3.84	0.66
22.	I have no intention to use the AOD in the near future.*	1.1	12.6	22.7	32.7	30.9	3.80	1.05
23.	I only use the AOD at my university when I am told to.*	4.8	16.7	37.5	28.3	12.6	3.27	1.04

*Items for which scoring is reversed.
1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5=Strongly Agree

The findings also consistent with one of the 11 shifts of Malaysian educational system transformation which is leverage ICT to expand quality education across Malaysia (Ministry of Education Malaysia, 2013). The overall positive attitudes towards the use of AOD in learning process could be attributed to the availability and accessibility of computer and Internet technology provided by Universiti Putra Malaysia. Moreover, there were two possible rationales of high positive attitudes towards the use of AOD in learning process namely the high usage of computer and its applications in teaching instruction and student assignments (Abedalaziz ***et al***., 2013).

The results also revealed that majority of the undergraduates were comfortable, approximating and enjoy using the AOD in their lessons. Additionally, majority of the undergraduates also stated that they glad the AOD was applicable in their lessons. The findings were similar with prior studies (Alrushiedat & Olfman, 2013; Kocaman-Karoglu, Ozden, & Kiraz, 2011; Courtney & King, 2009) where all of them noted that majority of students like to use the AOD and thought the AOD was extremely useful.

Additionally, majority of the undergraduates reported that they would like to learn more about the AOD and recommended other students to use the AOD in all courses. In addition, majority of the undergraduates intended to use the AOD in the future and would not avoid in using the AOD in their lesson. There were few reasons that may underlie the obtained results. The undergraduates may felt that traditional class discussions were short and only limited to few students (Alrushiedat & Olfman, 2013; Bassett, 2011), while the AOD was more comprehensive, lively and gave them an equal chance to participate actively in class (Sidhu & Embi, 2010; Shana, 2009). Thus, they can explicitly express their

ideas and opinions in writing (Ng, Cheung & Hew, 2012; Bassett, 2011; Kocaman-Karoglu *et al*., 2011; Sidhu & Embi, 2010; Cheung, Hew & Ng, 2008).

Furthermore, findings revealed that the undergraduates reported that using the AOD would be capable in saving more times and effort. The majority of the undergraduates agreed that AOD was an efficient means of getting information faster. Moreover, the undergraduates also stated that using the AOD would motivate them to engage more in learning and enhance their' learning achievement. The results imply that the undergraduates have realized the impact of the use of AOD in their learning process. These results were consistent with those of others studies and reported that the AOD facilitates students improve their learning skills (Kocaman-Karoglu *et al*., 2011; Sidhu & Embi, 2010; Shana, 2009) and perform better in academic (Alrushiedat & Olfman, 2013; Kocaman-Karoglu *et al*., 2011; Shana, 2009).

6. Conclusion

Overall, the undergraduates have positive attitudes in using AOD. On that noted, this study has provided a significant data in the body of knowledge particularly in online learning pedagogy at the higher education institutions in Malaysia. Results from this study may also help educational authorities and universities by suggesting issues that may influence undergraduates' attitudes towards the use of AOD in learning process. The findings of this research will also able to contribute to educational technology implementation by Universiti Putra Malaysia and facilitate in implementing successful frameworks of embedding online learning in higher educational institution system. The decision makers can take the necessary steps to encourage the positive attitudes in order to improve the use of AOD among undergraduates. The research data enable lecturers to use suitable type of AOD tools, strategies and technique in teaching and learning process.

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References

Abedalaziz, N., Jamaluddin, S., & Chin, H. L., (2013). Measuring Attitudes toward Computer and Internet Usage Among Postgraduate Students In Malaysia. *Turkish Online Journal of Educational Technology*, *12*(2), 200-216

Ajzen, I., & Fishbein, M. (2000). Attitudes and the Attitude-Behavior Relation: Reasoned and Automatic Processes. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology*: John Wiley & Sons.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: the case of Syrian EFL teachers. *Computers & Education*, 47, 373-398.

Ali, S. H. S, Ali, W. Z. W., Abdullah, R., & Ayub, A. F. M. (2008). Exploring The Distance Learner's Readiness on The Use of Distance Technology. Paper presented at the 2nd International Malaysian Educational Technology Convention: Converging technology, pedagogy and content. MS Garden Hotel Kuantan, Pahang Darul Makmur, Malaysia.

Ali, M. F., & Joyes, G. (2007). Measuring Online Interaction. 1st International Malaysian Educational Technology Convention 2007: Smart Teaching & Learning: Re-engineering ID, Utalization and Innovation of Technology, Johor Bahru, Malaysia, Malaysian Educational Technology Association (META).

Alrushiedat, N., & Olfman, L. (2013). Aiding Participation and Engagement in a Blended Learning Environment. *Journal of Information Systems Education*, *24*(2), 133-145.

Aydin, I. (2012). Attitudes toward Online Communications in Open And Distance Learning. *Turkish Online Journal of Distance Education (TOJDE)*, *13*(4), 333-346.

Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning and Performance Journal*. 19(1), 43-50.

Bassett, P. (2011). How Do Students View Asynchronous Online Discussions As A Learning Experience?. *Interdisciplinary Journal of E-Learning & Learning Objects*, *7*69-79.

Chen, L. (2012). Improving Teachers' Teaching with Communication Technology. *Journal of Educational Technology Systems*, *40*(1), 35-43.

Chen, C., Pedersen, S., & Murphy, K. (2012). The influence of perceived information overload on student participation and knowledge construction in computer-mediated communication. *Instructional Science*, *40*(2), 325-349. Doi:10.1007/s11251-011-9179-0

Cheung, W. S., Hew, K. F., & Ng, C. S. L. (2008). Toward an understanding of why students contribute in asynchronous online discussions. *Journal Educational Computing Research*. 38(1), 29-50.

Cochran, W. G. (1977). *Sampling Techniques* (3rd ed.). New York: John Wiley and Sons.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education* (Sixth ed.). New York: Routledge Taylor & Francis Group.

Courtney, A. M., & King, F. B. (2009). Online dialog: A tool to support preservice teacher candidates' understanding of literacy teaching and practice. Contemporary Issues in Technology and Teacher Education (Online serial), 9(3), 226-256.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Edmunds, R., Thorpe, M., & Conole, G. (2012). Student attitudes towards and use of ICT in course study, work and social activity: A technology acceptance model approach. *British Journal of Educational Technology*, *43*(1), 71-84. doi:10.1111/j.1467-8535.2010.01142.x

Erlin, Yusof, N., & Rahman, A. A. (2007). *Computational Models of Learner's Interaction in Collaborative Learning: Preliminaty Study*. 1st International Malaysian Educational Technology Convention 2007: Smart Teaching & Learning: Re-engineering ID, Utalization and Innovation of Technology, Johor Bahru, Malaysia, Malaysian Educational Technology Association (META).

Ferriman, N. (2013). The impact of blended e-learning on undergraduate academic essay writing in English (L2). *Computer & Education*, 60, 243-253.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2009). *Educational research: Competencies for analysis and application* (9th ed.). New Jersey: Merill, Pearson Education, Inc.

Hew, K. F. & Cheung, W.S. (2003). An exploratory study of the use of asynchronous online discussion in hypermedia design. *Journal of Instructional Science & Technology*, 6(1).

Hewitt, J. (2005). Toward an Understanding of How Threads Die in Asynchronous Computer Conferences. *The Journal of the Learning Sciences*. 14(4), 567-589.

Huang, X. S., & Hsiao, E.-L. (2012). Synchronous and asynchronous communication in an online environment: Faculty expereinces and perceptions. *The Quarterly Review of Distance Education*. 13(1), 15-30.

Kocaman-Karoglu, A., Ozden, M., & Kiraz, E. (2011). Using Asynchronous Communication Tools to Support Face-to-Face Courses: Turkish Preservice Teachers' Perspectives. *International Journal of Applied Educational Studies*, *10*(2), 59-73.

Ministry of Education Malaysia. (2013). *Malaysia Education Blueprint 2013-2025 (Preshool to Post-Secondary Education)*. Retrieved 19 October 2013 from http://www.moe.gov.my/en/pelan-pembangunan-pendidikan-malaysia-2013-2025

Ng, C. L., Cheung, W. S., & Hew, K. F. (2012). Interaction in asynchronous discussion forums: peer facilitation techniques. *Journal of Computer Assisted Learning*, *28*(3), 280-294. doi:10.1111/j.1365-2729.2011.00454.x

Onen, A. (2012). Effects of Educational Beliefs on Attitudes towards Using Computer Technologies. *Hacettepe University Journal of Education*, (43), 353-361.

Pallant, J. (2001). *SPSS Survival Manual*. Australia: Allen & Unwin.

Rainsbury, E. and P. Malcolm (2003). Extending the classroom boundries - an evaluation of an asynchronous discussion board. *Accounting Education*. 12(1), 46-61.

Roblyer, M. D. (2006). *Integrating educational technology into teaching* (4th Ed.). Upper Saddle River, New Jersey Columbus, Ohio: Pearson Merrill Prentice Hall.

Shana, Z. (2009). Learning with Technology: Using Discussion Forums to Augment a Traditional-Style Class. *Educational Technology & Society*. 12(3), 214-228.

Schafer, R. B., & Tait, J. L. (1986). A guide for understanding attitudes and attitude change. North Central Regional Extension Publication 138, 1-11.

Sidhu, R. K., & Embi, M. A. (2010). Learner E-tivities: Exploring Malaysian Learners' Roles in Asynchronous Computer-Mediated Communication. *European Journal of Educational Studies, 2*(2), 157-174.

Teo, T. (2012). Examining the intention to use technology among pre-service teachers: an integration of the Technology Acceptance Model and Theory of Planned Behavior. *Interactive Learning Environments*, *20*(1), 3-18. doi:10.1080/10494821003714632

Williams, B., Boyle, M., Molloy, A., Brightwell, R., Munro, G., Service, M., & Brown, T. (2011). Undergraduate paramedic students' attitudes to e-learning: findings from five university programs. *Research in Learning Technology*, *19*(1), 89-100. doi:10.1080/21567069.2011.586679

Wong, K. T, Osman, R., Choo, G., & Rahman, M. K. (2013). Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing. *International Journal of Instruction, 6*(1), 89-104.